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## TAPERED SECTIONAL DESIGN FOR EXPANSIBLE UNITS

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This invention relates to expansible building units or trailers having expansible wing elements, and more particularly to a form of construction in such wing elements which is adapted to facilitate the expansion or folding thereof.

Previously, expansible building units have been provided with wing wall sections and wing floor sections of rectangular configuration. It has been found necessary to secure sealing members to the edges of these sections in order to provide a weathertight construction for the unit when it is disposed in the expanded condition. However, when these seals are properly fitted for weather protection, it is normally impossible to fold the wing sections into the complementary rectangular openings provided in the rigid walls of the central building unit. If the fit is thoroughly tight, the seals tend to shear off during expansion or folding of the wing elements. On the other hand, if the fit is made too loose, so that the rectangular opening easily accommodates the wing elements, a gap between the wing elements and the rectangular frame of the opening results. A further source of difficulty often arises during the assembly of the wing sections if, as often happens, the hinge at one edge of a wing section is secured to the main body of the building unit at a level which is slightly different from that at which the hinge at the opposite end had been attached. Since the resulting variance in the hinge levels makes it impossible to fold the wing section within the rectangular opening, a reassembly of the unit then becomes necessary.

A related problem exists also because of the high coefficient of friction of the rubber seals or the other compressible sealing materials used. Great difficulty is often experienced in maneuvering the wing elements past the framework of the rectangular opening in the main body unit, when the conventional construction described is used.

One object of the present invention is, therefore, to provide a construction in the wing sections which will permit these sections to be moved easily into or out of the rectangular frame openings in the rigid walls, while at the same time permitting these sections to cooperate with one another and the seals secured thereto, for effective weatherproofing.

Another object of the present invention is to provide a compressible sealing element which will move past the rectangular wall opening with relative ease.

Still another object is to provide a construction that is relatively simple and yet which permits easy manipulation of the movable parts without danger of damage to these or related elements.

Further objects and advantages of this invention will become evident as the description proceeds and from an examination of the accompanying drawings which illustrate one embodiment of the invention and in which similar numerals refer to similar parts throughout the several views.

In the drawings:

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Figure 1 is a view in vertical section of a building unit illustrating one embodiment of the invention, the wing unit on one side being shown in the folded position and the wing unit on the opposite side being shown in the expanded position.

Figure 2 is a somewhat diagrammatic view in side elevation of the building unit shown in Figure 1, the view being taken toward the left side as shown in Figure 1, and the wing roof being shown in the raised position with the wing end walls in the folded position adjacent the folded wing floor and side wall assembly.

Figure 3 is a side elevation of the building unit shown in Figure 1, with the wing end walls as well as the wing roof being shown in the unfolded position.

Figure 4 is a plan view from above of a portion of the building unit shown in Figure 1, with the wing roof removed for clarity and the wing end walls being disposed in the expanded position, the wing floor being unfolded but having the wing side wall still folded against it.

Figure 5 is a plan view of a portion of the building unit shown in Figure 1, with all of the wing sections in the expanded and properly aligned position, except the wing roof which has been removed for clarity.

Figure 6 is a fragmentary cross sectional view of the hinge connection between a wing end wall and a frame element of the rectangular opening of the fixed side wall, the wing floor being shown in a fragmentary plan view.

Figure 7 is a fragmentary cross sectional view of the hinge connection between the wing roof and a frame element of the main roof, a fragmentary side elevation of the wing end wall being also disclosed therein.

Figure 8 is a fragmentary, cross sectional view of the hinge connection between the wing floor and the wing side wall.

Figure 9 is a fragmentary cross sectional view taken in a horizontal plane through the corner formed by the wing side wall and the wing end wall showing the sealing elements disposed between the wing side wall and the wing end wall and that disposed between the wing floor and the wing end wall.

Figure 10 is a fragmentary vertical cross section showing the outer edge of the wing roof and the upper edge of a wing side wall when both elements are disposed in the expanded position.

Figure 11 is a fragmentary cross sectional view of the hinge connection between the wing floor and the fixed floor of the central portion of the building unit.

Figure 12 is a fragmentary cross sectional view of one of the sealing elements showing the manner in which the element is deformed during relative motion between the wing elements with which the sealing element is associated.

Figure 13 is a fragmentary side elevation of the expanded building unit partly broken away to show the sealing elements.

Referring now to Figures 1 through 5, reference numeral 10 designates generally an expansible building unit having a central section provided with rigid walls, and a rigid floor and roof. The side walls 12 thereof may each have formed therein a centrally aligned opening 13 of substantially rectangular configuration, this opening being adapted to receive the wing sections of the building in their folded condition.

As best seen in Figure 2, the wing end walls 14 and 16 of the unit 10 are preferably tapered along the top edges 18 and 20 thereof. The taper may be gradual and preferably of constant inclination from the inner ends 22 and 24 of the wing end walls to the outer ends 26 and 28 thereof.

As best seen in Figure 3, the wing floor 30 may be similarly given a tapered construction at the side edges 32 and 34 thereof, the inclination likewise being gradual